

**REMARKS**

Claims 1-34 were pending in the present application. By virtue of this response, no claims have been cancelled, claim 1 has been amended, and new claim 35 has been added. Amendment and cancellation of certain claims is not to be construed as dedication to the public of any of the subject matter of the claims as previously presented. No new matter has been added. Support for this amendment and for new claim 35 may be found throughout the specification but particularly on pages 14, lines 12 to page 15, line 18. Accordingly, claims 1-35 are currently under consideration.

**Replacement Information Disclosure Statement**

The Office Action has requested that a replacement IDS be submitted with the application number listed at the top, since the currently submitted IDS either did not include an application number or included an incorrect application number.

Applicants' current patent counsel has reviewed the IDS submitted by the Applicants' previous patent counsel as part of the continuation application filed on April 16, 2004. This IDS appears to be an un-initialed copy of the IDS submitted in the parent case (now U.S. Patent No. 6,780,178) from which the pending application is a continuation. According to M.P.E.P. §609.02(2), the examiner will consider information that has been considered by the Office in a parent application when examining a continuation application filed under 37 C.F.R. 1.53(b), as in the instant application. A duplicate listing of this IDS need not be resubmitted in the continuing application unless the applicant desires the information in the IDS to be printed on the patent. Applicants therefore decline to submit a replacement IDS that merely duplicates the references cited by the parent application.

**Telephone Interview of August 9, 2006**

The Applicants thank the Examiner for the telephone interview of August 9, 2006, during which the Applicant explained the operation of the applicants invention and discussed the Office Action of June 6, 2006. The Applicants also appreciate the Examiner indicating that claims

17-34 would be allowable after filing a terminal disclaimer. In response to the Examiner's request, the Applicants are including a description of the phrase "reflection of voltage transients" as it is used in the patent application and pending claims.

### Rejections Under 35 U.S.C. § 112

#### A. Written Description

Claim 2 stands rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In particular, the Office Action of June 6, 2006 alleges that the claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, the Office Action objects that "[R]eflection of voltage transients' is neither found in the specification, nor disclosed."

Applicants respectfully disagree.

Claim 2, which recites the recitation of the generation of micropulses within minipulses by the reflection of voltage transients, is described explicitly in the specification. In particular, the phrase 'reflection of voltage transients' is described in the specification in paragraphs [0073] and [0074] of the published application, corresponding to page 28, line 1 to page 29, line 3 of the application as filed (in part, "In accordance to well-known principles, low impedance line 58 will cause the *rising edge of a pulse to be reflected* from the output end if the output impedance is high. This condition occurs when vapor cavity 30 is formed and not while electrode 16 is in direct contact with electrolyte 14. The *reflection will oscillate within line 58 with a period determined by its length, and will form a high frequency (several MHz) modulation.*" Emphasis added).

Paragraphs [0073] and [0074] describe and give an example of the subject matter recited in claim 2. To wit, this portion of the specification describes the reflection of voltage transients to generate micropulses within minipulses. This description and example would certainly convey with reasonable clarity to one of skill in the art that the Applicants were in possession of the invention as

now claimed at the time of filing of the application, as is required under 35 U.S.C., §112, first paragraph. See M.P.E.P. §2163.02. Although the exact phrase ‘reflection of voltage transients’ does not appear in the specification, as section 2163.02 of the M.P.E.P. points out, “the subject matter of the claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement.”

Since the subject matter recited in claim 2 is clearly described in the specification, the 35 U.S.C. §112 first paragraph rejection of this claim cannot stand. Thus, the Applicants respectfully request withdrawal of the 35 U.S.C. §112 first paragraph rejection of claim 2.

#### B. Indefiniteness

Claim 2 also stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Office Action alleges that “[R]eflection of voltage transients’ is indefinite.”

Claim 2, which recites the recitation of the generation of micropulses within minipulses by the reflection of voltage transients, would be readily understood by one of skill in the art, and therefore one of skill in the art would readily understand the metes and bounds of the claim, as required by 35 U.S.C. §112, second paragraph (see, e.g., M.P.E.P. § 2173). M.P.E.P §2173.02 makes it clear that claim language must define the patentable subject matter with a reasonable degree of particularity and distinctness. Furthermore, definiteness of claim language must be analyzed, not in a vacuum, but in light of: (A) The content of the particular application disclosure; (B) the teachings of the prior art; and (C) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.

As discussed above, the phrase ‘reflection of voltage transients’ is described in the specification. Furthermore, this phrase is understood in the prior art, and would also be understood by one of ordinary skill in the pertinent art at the time the invention was made. One of ordinary skill in the art, upon reading the specification, would understand what is meant by the phrase

‘reflection of voltage transients,’ especially since the phenomena of voltage transients is well-known in the art. Voltage transients are electromagnetic waves that propagate in the cable and thus are subject to reflections from the cable ends, where the impedance changes. The laws of propagation of electromagnetic waves in the waveguides (including cables) and corresponding reflections from the boundaries (discontinuities) are described in numerous electronics textbooks. See, for example, paragraphs 1-19 on page 27 in a chapter “Oscillation and Wave Fundamentals” in a book “Fields and Waves in Modern Radio”, by S. Ramo and J.R. Whinnery, John Wiley and Sons, (NY 1953). A copy of these pages is attached herewith in Appendix A.

Thus, the Applicants respectfully request withdrawal of the 35 U.S.C. §112, second paragraph rejection, for at least the reasons provided above.

### **Rejections Under 35 U.S.C. § 102**

Claims 1, 2, 3, 9 and 14-15 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by US 6,047,700 to Eggers et al. (“Eggers”). Applicants respectfully disagree.

Independent claim 1, from which claims 2, 3, 9 and 14-15 depend, recites features that are not shown or described in Eggers. Thus Eggers cannot anticipate claims 1-3, 9 and 14-15, since a reference must include every element of the claim in order to anticipate a claim. M.P.E.P. §2131. In particular, Eggers does not show or describe a *pulse and minipulse voltage source* wherein said voltage source *comprises a pulse control* configured to modulate the output voltage supplied to the cutting and return electrodes so that the output voltage comprises pulses separated by a pulse interval greater than 1 ms, and wherein each of said pulses comprises a plurality of minipulses separated by a minipulse interval of less than 1 ms, as recited by claim 1.

Instead, Eggers describes a system for applying high-frequency (RF) voltage to remove a tissue structure. The high-frequency (RF) voltage source described by Eggers is effectively a continuous power source. See, e.g., col 12, lines 43-53 (“As discussed above, the voltage is usually delivered in a series of voltage pulses or alternating current of time varying voltage amplitude with a sufficiently high frequency (e.g., on the order of 5 kHz to 20 MHz) such that *the voltage is*

*effectively applied continuously* (as compared with e.g., lasers claiming small depths of necrosis, which are generally pulsed about 10 to 20 Hz). In addition, *the duty cycle (i.e., cumulative time in any one-second interval that energy is applied) is on the order of about 50% for the present invention*, as compared with pulsed lasers which typically have a duty cycle of about 0.0001%.” Emphasis added). Thus the power source of Eggers does not include a pulse control, and is not capable of applying a series of pulses separated by greater than 1 ms wherein each pulse comprises a plurality of minipulses separated by a minipulse interval of less than 1 ms. Eggers power supply provides high-frequency (“on the order of 5 kHz to 20 MHz”), effectively continuous voltage. In contrast, the voltage source recited by the claims supplies pulses (composed of minipulses) that are separated by a pulse interval of greater than 1 ms (giving them a frequency of less than 1 kHz).

The pulse and minipulse voltage source comprising a pulse control as recited in claims 1-16 is structurally different from the voltage source present in Eggers. Eggers does not describe a voltage supply including a pulse control that can produce pulses separated by greater than 1 ms wherein each pulse comprises a plurality of minipulses separated by a minipulse interval of less than 1 ms.

The Office Action alleges that Eggers “indirectly discloses” a pulse and minipulse voltage source:

“Eggers discloses... voltage source (20) with pulse control (30) permitting the claimed pulse parameters including micropulses within minipulses (Eggers *indirectly discloses* peak power control, duration control and a modulation format with pulse power, duration, and interval in col. 12 beginning at line 54 where Eggers discloses variability in parameters (such as power level)...” Office Action of June 6, 2006 page 3, emphasis added.

However, the Eggers’ voltage source (20) with pulse control (30) is not the same as the recited pulse and minipulse voltage source comprising a pulse control, and it does not permit the Eggers power supply to provide the recited pulses comprising a plurality of minipulses. Col. 12, beginning at line 54 describes only power supplies for providing high-frequency RF voltages. Applicants disagree that Eggers (including col. 12 line 54 to col. 13, line 5) discloses “duration control and modulation format” either indirectly or otherwise. Although Eggers does describe

adjusting the average power level by allowing the user to select the voltage level, this is not the same as supplying pulses comprising a plurality of minipulses. First, Eggers does not adjust average power level by controlling modulation format. For example, the pulse control (30) referred to by the Office Action is specifically referred to as a “voltage level adjust” that merely adjusts the voltage of the power supply. Eggers’ pulse control (30, shown in FIG. 1 of Eggers) does not modulate the duration or even frequency of the pulses. (“Power supply 28 has an operator controllable voltage level adjustment 30 to change the applied voltage level, which is observable at a voltage level display 32,” Eggers, col. 14, lines 46-48). Second, Eggers does not provide any description or suggestion that the power supply can be modified to provide pulses consisting of multiple minipulses where the pulses are separated by more than 1 ms and the minipulses are separated by less than 1 ms. Such a modification would be a departure from the teaching of Eggers, in which voltage is applied effectively continuously.

In short, Eggers does not show or even suggest a pulse and minipulse voltage source as recited by the claims. Since Eggers does not include all of the features recited by claim 1, from which claims 2, 3, 7 and 14-15 depend, Eggers cannot anticipate these claims. Thus, the Applicants respectfully request withdrawal of the 102(b) rejection of pending claims 1-3, 9 and 14-15 for at least the reasons provided above.

### **Rejections Under 35 U.S.C. § 103**

#### *Claims 4, 5 and 13*

Claims 4, 5 and 13 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Eggers in view of U.S. 6,620,160 to Lewis et al. (“Lewis”).

Applicants respectfully disagree.

As discussed above, Eggers does not show or even suggest all of the features recited in independent claim 1, from which claims 4, 5 and 13 depend. In particular, Eggers does not teach or suggest a *pulse and minipulse voltage source* wherein said voltage source *comprises a pulse control*

configured to modulate the output voltage supplied to the cutting and return electrodes so that the output voltage comprises pulses separated by a pulse interval greater than 1 ms, and wherein each of said pulses comprises a plurality of minipulses separated by a minipulse interval of less than 1 ms. Moreover, Lewis cannot cure this deficiency.

Lewis describes a device for electrical emulation of a pulsed laser. Lewis does not describe a pulse and minipulse voltage source comprising a pulse control. In particular, Lewis does not describe a voltage source with a pulse control configured to modulate the output voltage supplied to the cutting and return electrodes so that the output voltage comprises pulses separated by a pulse interval greater than 1 ms, and wherein each of said pulses comprises a plurality of minipulses separated by a minipulse interval of less than 1 ms.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the cited references. M.P.E.P. § 2143.03. Since neither Eggers nor Lewis, nor the combination of Eggers and Lewis teach or suggest all of the features recited by claim 1, from which claims 4, 5 and 13 depend, these claims are not obvious in light of these references. Applicant's respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 4, 5 and 13 for at least the reasons provided above.

#### *Claims 6-8 and 10*

Claims 6-8 and 10 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Eggers in view of US 6,113,594 to Savage ("Savage").

Applicants respectfully disagree.

As discussed above, Eggers does not show or even suggest a *pulse and minipulse voltage source* wherein said voltage source *comprises a pulse control* as recited in independent claim 1, from which claims 6-9 and 10 depend. Moreover, Savage cannot cure this deficiency.

Savage describes a method of surgically treating a tissue filled with a distention fluid. Savage does not describe a pulse and minipulse voltage source. In particular, Savage does not

describe a voltage source comprising a pulse control configured to modulate the output voltage supplied to the cutting and return electrodes so that the output voltage comprises pulses separated by a pulse interval greater than 1 ms, and wherein each of said pulses comprises a plurality of minipulses separated by a minipulse interval of less than 1 ms.

Since neither Eggers nor Savage, nor the combination of Eggers and Savage teach or suggest all of the features recited by claim 1, from which claims 6-8 and 10 depend, these claims are not obvious in light of these references. Applicant's respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 6-8 and 10 for at least the reasons given above.

*Claims 11, 12 and 16*

Claims 11, 12 and 16 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Eggers in view of U.S. 4,781,175 to McGreevy et al. ("McGreevy").

Applicants respectfully disagree.

As discussed above, Eggers does not show or even suggest a *pulse and minipulse voltage source* comprising a *pulse control* as recited in independent claim 1, from which claims 11, 12 and 16 depend. Moreover, McGreevy cannot cure this deficiency.

McGreevy describes coagulation of tissue using a jet of ionizable gas. McGreevy does not describe a pulse and minipulse voltage source. In particular, McGreevy does not describe a voltage source comprising a pulse control that is configured to modulate the output voltage supplied to the cutting and return electrodes so that the output voltage comprises pulses separated by a pulse interval greater than 1 ms, and wherein each of said pulses comprises a plurality of minipulses separated by a minipulse interval of less than 1 ms.

Since neither Eggers nor McGreevy, nor the combination of Eggers and McGreevy teach or suggest all of the features recited by claim 1, from which claims 11, 12 and 16 depend, these claims are not obvious in light of these references. Applicant's respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 11, 12 and 16 for at least the reasons given above.



**Double Patenting**

Claims 1-34 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6,780,178.

To advance the prosecution of this case, the applicants have included a terminal disclaimer. Applicants respectfully request that the Examiner withdraw the rejection of claims 1-34 based upon obviousness-type double patenting.

**CONCLUSION**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, Applicants petition for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. **595992000501**. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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Appendix A